

New Claims

1. A holder (1, 6, 7) for a mobile radio terminal (0), with the holder (1, 6, 7) being provided with an interface (50, 77) for connection of an external antenna (52), in particular a motor vehicle antenna, and with a coupling structure for electromagnetic coupling of RF signals between the holder (1, 6, 7) and the antenna (52) of a mobile radio terminal (0) which is located in the holder, and with the coupling structure being arranged in the holder (1, 6, 7) in such a way that, when the mobile radio terminal (0) is inserted, the coupling structure is positioned underneath the mobile radio terminal in the vicinity of the mobile radio (0),
characterized

in that the coupling structure is in the form of a two-layer or multilayer coupling structure with two or more coupling structure elements (2, 3; 62, 63; 72, 73, 74) arranged one above the other on essentially mutually parallel planes, in which the two or more coupling structure elements (2, 3; 62, 63; 72, 73, 74) are arranged one above the other separated from one another by three to six millimeters, and in that a first coupling structure element (2; 8) comprises two differently shaped structure elements (22, 23; 82, 83) which are intended for different wavelength ranges.

2. The holder as claimed in claim 1,
characterized
in that the first coupling structure element (2; 8) has two or more structure elements (22, 23; 82, 83) whose orientation directions are rotated through 90°.

3. The holder as claimed in one of claims 1 or 2,
characterized
in that a second coupling structure element (3) comprises two or more differently shaped structure elements (31, 321, 322, 323, 324) which are coupled to

one another.

4. The holder as claimed in one of the preceding claims,

5 characterized

in that one coupling structure element (2, 3; 62, 63; 72, 73, 74) is in each case composed of a conductive material which is applied to one face of a mount substrate (21, 81), in particular of a board.

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5. The holder as claimed in claim 4, characterized

15 in that two or more structure elements (31, 321, 322, 323, 324) composed of a conductive material are applied to the mount substrate (39) and can be connected to one another for tuning, in particular by means of capacitors or coils.

20 6. The holder as claimed in one of the preceding claims,

characterized

25 in that the two or more coupling structure elements (2, 3; 62, 63; 72, 73, 74) are each composed of a conductive material which is applied to a respectively associated thin dielectric mount substrate body (21, 39, 81), and the dielectric mount substrate bodies are arranged one above the other, at a distance from one another.

30 7. The holder as claimed in claim 6, characterized

in that the holder has one or more electrical connection elements (4, 64, 75, 76) which are arranged between mount substrate bodies.

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8. The holder as claimed in claim 7, characterized

in that one electrical connection element has one or more electrically conductive contact elements which are

mounted in a sprung form and engage on correspondingly shaped contact surfaces.

9. The holder as claimed in one of claims 6 to 8,
5 characterized
in that an RF coupling element (35) for coupling two or more structure elements (22, 23; 82, 85) which are applied to a second mount substrate body (21; 91) is arranged on a first mount substrate body (39).

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10. The holder as claimed in one of claims 6 to 9, characterized
in that the mount substrate body is composed of a flexible material.

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11. The holder as claimed in one of claims 6 to 10, characterized
in that the mount substrate body (39) has one or more internal milled areas (341, 342, 343) which are
20 arranged between the conductor surfaces of coupling structure elements (31, 321, 322, 323, 324).

12. The holder as claimed in one of the preceding claims,
25 characterized
in that the coupling structure is arranged in the holder (1, 6, 7) in such a way that, when the mobile radio (0) is inserted, the coupling structure is positioned in the immediate vicinity of the antenna of
30 the mobile radio.

13. The holder as claimed in one of the preceding claims,
characterized
35 in that one coupling structure element (72) is connected, in particular adhesively bonded, to the housing (71) of the holder (7).

14. The holder as claimed in one of the preceding

claims,

characterized

in that one coupling structure element (72) is arranged
on the inner face of the housing (71) of the holder
5 (7), in the immediate vicinity of the antenna of the
mobile radio (0).

15. The holder as claimed in one of the preceding
claims,

10 characterized

in that the two or more coupling structure elements are
arranged at a distance from one another on planes which
are essentially parallel to one another, but the
parallel planes being aligned at right angles to the
15 main emission direction of the mobile radio terminal.

New Claims

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characterized

in that the coupling structure is in the form of a two-layer or multilayer coupling structure with two or more coupling structure elements (2, 3; 62, 63; 72, 73, 74) arranged one above the other on essentially mutually parallel planes, in which the two or more coupling structure elements (2, 3; 62, 63; 72, 73, 74) are arranged one above the other separated from one another by three to six millimeters, and in that a first coupling structure element (2; 8) comprises two differently shaped structure elements (22, 23; 82, 83) which are intended for different wavelength ranges.

2. The holder as claimed in claim 1,
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in that the first coupling structure element (2; 8) has two or more structure elements (22, 23; 82, 83) whose orientation directions are rotated through 90°.

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in that a second coupling structure element (3) comprises two or more differently shaped structure elements (31, 321, 322, 323, 324) which are coupled to

one another.

4. The holder as claimed in one of the preceding claims,

5 characterized

in that one coupling structure element (2, 3; 62, 63; 72, 73, 74) is in each case composed of a conductive material which is applied to one face of a mount substrate (21, 81), in particular of a board.

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5. The holder as claimed in claim 4, characterized

15 in that two or more structure elements (31, 321, 322, 323, 324) composed of a conductive material are applied to the mount substrate (39) and can be connected to one another for tuning, in particular by means of capacitors or coils.

20 6. The holder as claimed in one of the preceding claims, characterized

25 in that the two or more coupling structure elements (2, 3; 62, 63; 72, 73, 74) are each composed of a conductive material which is applied to a respectively associated thin dielectric mount substrate body (21, 39, 81), and the dielectric mount substrate bodies are arranged one above the other, at a distance from one another.

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in that the holder has one or more electrical connection elements (4, 64, 75, 76) which are arranged between mount substrate bodies.

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8. The holder as claimed in claim 7, characterized

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mounted in a sprung form and engage on correspondingly shaped contact surfaces.

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in that an RF coupling element (35) for coupling two or more structure elements (22, 23; 82, 85) which are applied to a second mount substrate body (21; 91) is arranged on a first mount substrate body (39).

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12. The holder as claimed in one of the preceding claims,
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15 main emission direction of the mobile radio terminal.